

1 GCGGCCGCGAATTGGCACCAAGGGCGCTCTCTCCGGTGTGGTACTGCTGTCTGTGGT 60  
 61 GTGGCTGTGGGACCCGTGAGCAAGCAGCGACGCCAGCGCGGAGAACCGACGAAAGGTGT 120  
 121 CACCAACAGTGATGGCAGTGGAGGACAGCACGCTGCAAGTAGTGGTACGGGTGCGGCC 180  
 Met Ala Val Glu Asp Ser Thr Leu Gln Val Val Val Arg Val Arg Pro Pr  
 181 CACCCCTCGGGAGCTGGACAGTCAGCGGCCAGTGGTTAGGTGGTGGACGAGCGGGT 240  
 o Thr Pro Arg Glu Leu Asp Ser Gln Arg Arg Pro Val Val Gln Val Val Asp Glu Arg Va  
 241 GCTGGTGTAAACCTGAGGAGCCGATGGAGGGTCCCTGGCCTGAAATGGGTGGCAC 300  
 1 Leu Val Phe Asn Pro Glu Glu Pro Asp Gly Gly Phe Pro Gly Leu Lys Trp Gly Gly Th  
 301 CCATGATGGCCCCAAGAAGAAGGGCAAAGACCTGACGTTGTCTTGACCGGGTCTTGG 360  
 r His Asp Gly Pro Lys Lys Gly Lys Asp Leu Thr Phe Val Phe Asp Arg Val Phe Gl  
 361 CGAGGCGGCCACCAACAGGACGTGTCCAGCACACCACGCACAGCGTCTGGACAGCTT 420  
 y Glu Ala Ala Thr Gln Gln Asp Val Phe Gln His Thr Thr His Ser Val Leu Asp Ser Ph  
 421 CCTCCAGGGCTACAACGTCTCAGTGTTCGCTACGGGCCACCGGGCTGGAAAGACACA 480  
 e Leu Gln Gly Tyr Asn Cys Ser Val Phe Ala Tyr Gly Ala Thr Gly Ala Gly Lys Thr Hi  
 481 CACCATGCTGGAAAGGGAGGGGACCCCGGCATCATGTACCTGACCAACCGTGGAACTGTA 520  
 s Thr Met Leu Gly Arg Glu Gly Asp Pro Gly Ile Met Tyr Leu Thr Thr Val Glu Leu Ty  
 541 CAGGCGCCTGGAGGCCAGCAGGAGAACGACTTCGAGGTGCTCATCAGCTACCAGGA 600  
 r Arg Arg Leu Glu Ala Arg Gln Gln Glu Lys His Phe Glu Val Leu Ile Ser Tyr Gln Gl

FIG. 1A

601 GGTGTATAATGAACAGATCCATGACCTCCTGGAGGCCAAGGGGCCCTGCCATCCCGGA 660  
 uValTyrAsnGluGlnIleHisAspLeuLeuGluProLysGlyProLeuAlaIleArgGl  
  
 661 GGACCCCGACAAGGGGGTGGTGGTGCAAGGACTTCTTCCACCAGCCAGCCTCAGCCGA 720  
 uAspProAspLysGlyValValValGlnGlyLeuSerPheHisGlnProAlaSerAlaGl  
  
 721 GCAGCTGCTGGAGATACTGACCAGGGGAACCGTAACCGCACGCAGCACCCCCTGATGC 780  
 uGlnLeuLeuGluIleLeuThrArgGlyAsnArgAsnArgThrGlnHisProThrAspAl  
  
 781 CAACGCGACTTCCTCCCGCTCCATGCCATCTTCCAGATCTTGTAAGCAGCAGGACCG 840  
 aAsnAlaThrSerSerArgSerHisAlaIlePheGlnIlePheValLysGlnGlnAspAr  
  
 841 GGTTCCAGGACTGACCCAGGCTGTCCAGGTGGCCAAGATGAGCCTGATTGACCTGGCTGG 900  
 gValProGlyLeuThrGlnAlaValGlnValAlaLysMetSerLeuIleAspLeuAlaGl  
  
 901 CTCAGAGCGGGCATCCAGCACCCATGCGAAGGGGGAGCGGGCTGCGGGAGGGGCCAACAT 960  
 ySerGluArgAlaSerSerThrHisAlaLysGlyGluArgLeuArgGluGlyAlaAsnIl  
  
 961 CAACCGCTCTGCTGGCGCTCATCAACGTCTCAATGCCCTGGCGATGCAAAGGGCCG 1020  
 eAsnArgSerLeuLeuAlaLeuIleAsnValLeuAsnAlaLeuAlaAspAlaLysGlyAr  
  
 1021 CAAGACCCATGTGCCCTACCGGGACAGCAAAGTGAACCGCCTGCTCAAAGACTCCCTCGG 1080  
 gLysThrHisValProTyrArgAspSerLysLeuThrArgLeuLeuLysAspSerLeuGl  
  
 1081 GGGCAACTGCCGACAGTGATGATCGCTGCCATCAGCCCTCCAGCCTGACCTACGAGGA 1120  
 yGlyAsnCysArgThrValMetIleAlaAlaIleSerProSerSerLeuThrTyrGluAs  
  
 1141 CACGTACAACACCCCTCAAATATGCCGACCGGGGCCAAGGAGATCAGGCTCTGCTGAAGAG 1200  
 pThrTyrAsnThrLeuLysTyrAlaAspArgAlaLysGluIleArgLeuSerLeuLysSe  
  
 1201 CAATGTGACCAGCCTGGACTGTCACATCAGCCAGTATGCTACCATCTGCCAACAGCTCCA 1260  
 rAsnValThrSerLeuAspCysHisIleSerGlnTyrAlaThrIleCysGlnGlnLeuGl

FIG. 1B

1261 GGCTGAGGTAGCCGCTCTGAGGAAGAAGCTCCAAGTGTATGAGGGGGAGGCCAGCCCC 1320  
 nAlaGluValAlaAlaLeuArgLysLysLeuGlnValTyrGluGlyGlyGlnProPr

1321 ACCACAGGACCTCCCAGGATCTCCCAAGTCGGGACCACCAGAACACCTTCCCAGCTC 1380  
 oProGlnAspLeuProGlySerProLysSerGlyProProProGluHisLeuProSerSe

1381 CCCCTGCCACCCCACCCCTCCCAGCCAGCCCTGCACCCCAGAGCTCCCTGCAGGGCCTAG 1440  
 rProLeuProProHisProProSerGlnProCysThrProGluLeuProAlaGlyProAr

1441 AGCCCTTCAAGAGGAGAGTCTGGGGATGGAGGCCAGGTGGAGAGGGCCATGGAAGGGAA 1500  
 gAlaLeuGlnGluGluSerLeuGlyMetGluAlaGlnValGluArgAlaMetGluGlyAs

1501 CTCTTCAGACCAGGAGCAGTCCCCAGAGGATGAGGATGAAGGCCAGCTGAGGAGGTTCC 1560  
 nSerSerAspGlnGluGlnSerProGluAspGluGlyProAlaGluGluValPr

1561 AACCCAGATGCCAGAGCAGAACCCACACATGCACTGCCAGAGTCCCCTGCCCTGACCCT 1620  
 oThrGlnMetProGluGlnAsnProThrHisAlaLeuProGluSerProArgLeuThrLe

1621 GCAGCCCCAAGCCAGTCGTGGGCCACTTCTCAGCACGGAACTGGATGGGACCGTTCTAA 1680  
 uGlnProLysProValValGlyHisPheSerAlaArgGluLeuAspGlyAspArgSerLy

1681 GCAGTTGGCCCTAAAGGTGCTGTGCGTTGCCAGCGGCAGTACTCCCTGCTCCAAGCAGC 1740  
 sGlnLeuAlaLeuLysValLeuCysValAlaGlnArgGlnTyrSerLeuLeuGlnAlaAl

1741 CAACCTCCTGACGCCGACATGATCACAGAGTTGAGACCCTACAGCAGCTGGTGCAAGA 1800  
 aAsnLeuLeuThrProAspMetIleThrGluPheGluThrLeuGlnGlnLeuValGlnGl

1801 GGAAAAAAATTGAGCCTGGGCAGAGGCCTTGAGGACTTCAGGCCTGGCCAGGGGGCACC 1860  
 uGluLysIleGluProGlyAlaGluAlaLeuArgThrSerGlyLeuAlaArgGlyAlaPr

1861 TCTGGCTCAGGAGCTGTGTTCAGAGTCAATCCCTGTGCCGTCTCCTCTGCCAGAGCC 1920  
 oLeuAlaGlnGluLeuCysSerGluSerIleProValProSerProLeuCysProGluPr

FIG. 1C

1921 TCCAGGATACTGGCCCTGTGACCCGGACTATGGCGAGGCGACTGAGTGGCCCCCTGCA 1980  
 oProGlyTyrThrGlyProValThrArgThrMetAlaArgArgLeuSerGlyProLeuHi  
  
 1981 CACCCTGGGAATCCCGCCTGGACCCAAC TGCA CCCAGGCCAGGGTCCGATGGCCCAT 2040  
 sThrLeuGlyIleProProGlyProAsnCysThrProAlaGlnGlySerArgTrpProMe  
  
 2041 GGAGAAGAAGAGGAGGAGACCAAGCGCCTTGGAGGCAGACAGTCCCATGGCCTCAAAGCG 2100  
 tGluLysLysArgArgProSerAlaLeuGluAlaAspSerProMetAlaSerLysAr  
  
 2101 GGGCACCAAGCGCCAGCGCAGTCCTCCTGCCCTGCCTAAGGAGAGGGTCTGCCTGA 2160  
 gGlyThrLysArgGlnSerPheLeuProCysLeuArgArgGlySerLeuProAs  
  
 2161 CACCCAACCTTCACAGGGGCCAGCACCCCCAAAGGAGAAAGGGCCTCCTCCCCCTGCCA 2220  
 pThrGlnProSerGlnGlyProSerThrProLysGlyGluArgAlaSerSerProCysHi  
  
 2221 TTCCCCTCGCGTTGCCAGGCCACAGTCATAAAAGCCGGTGCCCCTGGCCCTCCGC 2280  
 sSerProArgValCysProAlaThrValIleLysSerArgValProLeuGlyProSerAl  
  
 2281 CATGCAGAACTGCTCCACCCCGCTGGCTCTGCCACTCGAGACCTCAATGCCACCTTG 2340  
 aMetGlnAsnCysSerThrProLeuAlaLeuProThrArgAspLeuAsnAlaThrPheAs  
  
 2341 TCTCTCTGAGGAGCCTCCCTCAAAGCCAGTTCCATGAATGCATTGGCTGGACAAAAT 2400  
 pLeuSerGluGluProProSerLysProSerPheHisGluCysIleGlyTrpAspLysIl  
  
 2401 ACCCCAGGAGCTGAGCAGGCTGGACCAGCCCTTCATCCCCAGGGCACCTGTGCCCTGTT 2460  
 eProGlnGluLeuSerArgLeuAspGlnProPheIleProArgAlaProValProLeuPh  
  
 2461 CACCATGAAGGGCCCCAAGCCAACATCTTCCCTCCCTGGGACCTCTGCCTGCAAGAAGAA 2520  
 eThrMetLysGlyProLysProThrSerSerLeuProGlyThrSerAlaCysLysLysLy  
  
 2521 GCGCGTTGCGAGTCCTCAGTCTCCATGGCCGCAGCCGCATGCCCGCCTCCCCAGCAG 2580  
 sArgValAlaSerSerValSerHisGlyArgSerArgIleAlaArgLeuProSerSe

FIG. 1D

2581 CACTTTGAAGAGGCCAGCTGGCCCTTGTACTCCCAGAGCTGCCCTTGAGTCCCCTGTG 2640  
 rThrLeuLysArgProAlaGlyProLeuValLeuProGluLeuProLeuSerProLeuCy

2641 CCCTAGCAACCAGGAGGAATGGAAAGGACCTCATCAGGGTGGGAGAGCGCTCTCAGCAGG 2700  
 sProSerAsnArgArgAsnGlyLysAspLeuIleArgValGlyArgAlaLeuSerAlaGl

2701 GAACGGCGTCACCAAGGTGTCCTGACCGCCAGAATGTCCCTGACCACCAAGGTGTCCTAAC 2760  
 yAsnGlyValThrLysValSer

2761 CTACCGGCCCTCTGCTGGATACCCCTTTGGACCTGTAGCCACCTGCACCAAGGAGCTGG 2820

2821 ACCTGCCTTCCTTACCTGGAGCAATTAGTGCCAACACACACCTTGCTGTATTAACATCCC 2880

2881 TCCCCAGACATCCATCCTGCTACTCACCCCTGTTAACATCCTGTTACACTCAGCTTCTT 2940

2941 GGCATGTACATATTCAATTGTGAGTGTAAATGTGCTGCTGTTTTGTTGGTGGTT 3000

3001 TTTGTTTTGTTTTGTTTGAGATGGAGTCTTACTCTGTCGCCAGGCTGGAGTG 3060

3061 CAGTGGTACGATCTGGCTCACTGCAACCTCCGCCTCTGGGTTCAAGTAATTCTCCTGC 3120

3121 CTCAGCTTCCAAGTAGCTGGATTACAGGCACCCATCACCAACACCCAGCTAATTTCGT 3180

3181 CTTTTAATAGAGAGGGGTTTTCCATGTTGCCAGGCTGGCTTGAACTCCTGACCTC 3240

3241 AGGTGATCCGCCTGCCTCAGCTCCAAAGTGCTGAGATTACAGGCATGAGCTACCAACGC 3300

3301 CTGGCCCGTGTGCTGTTAAAGGTGCTGCCATGTTCCCCATCTTTTTTGAG 3360

**FIG. 1E**

3361	ATGGAGTCTCGCTCTGTCGCCAGGCTGGAGTGCAGTGGTGGCGATCTGGCTCACTGCA	3420
3421	AGCTCCGCCTCCCAGGTTACACCATTCTCCTGCCTCAGCCTCCCAAGTAGCTGGGACTA	3480
3481	CAGGCGCCCACCACCAACGCCGGCTAATTTTGATTTAGTAGAGATGGGTTTCAC	3540
3541	CGTGTTAGCCAGGCTGGTCTCGATCTGACCTCATGATCCACCCGCCCTGGCCTCCAAAG	3600
3601	TGCTGGGATTACAGGCAGTGGCCACTGCGCCGGCCTCCCTCTCATTTATGATGCCCTC	3660
3661	TGTGCAGGCAGACGGCTTGGGCTCTTCCCCACCTGTCTCTAACACAGGCCAACGG	3720
3721	TGATGCCACAGGCAGTAGAGGAGGAATGAGGATGGGTTGGGAGCGGGAGTCGCGGCT	3780
3781	TGGCTTCCCTGGTTCTGAGAGGGACATCTCATCCCTACTCCCCCTGGTCCCCAACCA	3840
3841	CAGTCCTGGTAAGATGTGGATGATAATGGTGCCTGATTTCAAATGAAGACAGCTTA	3900
3901	TTGCTTAACTCTATTGTACATAGGATACACGTTCACTGTAAGTGTAAAGGGAA	3960
3961	TTCAGGCTTAATGCTGCACCTAGATATAATGCTAATGATACTGGTTATAGCCTCT	4020
4021	GATCCTTATTCATATATATAGATATACATATATTGGTATAACAATAAA	4080
4081	CCGTCTCCATCCTGGGAAAAAA	4108

**FIG. 1F**

1 GACAGCACGC TGCAAGTAGT GGTACGGGTG CGGCCCCCCA CCCCTCGGGA GCTGGACAGT  
61 CAGCGGCGGC CAGTGGTTCA GGTGGTGGAC GAGCGGGTGC TGGTGTAA CCCTGAGGAG  
121 CCCGATGGAG GGTTCCCTGG CCTGAAATGG GGTGGCACCC ATGATGGCCC CAAGAAGAAG  
181 GGCAAAGACC TGACGTTGT CTTGACCGG GTCTTGGCG AGGCGGCCAC CCAACAGGAC  
241 GTGTTCCAGC ACACCACGCA CAGCGTCCTG GACAGCTTCC TCCAGGGCTA CAACTGCTCA  
301 GTGTTGCCT ACGGGGCCAC CGGGGCTGGG AAGACACACA CCATGCTGGG AAGGGAGGGG  
361 GACCCCGGCA TCATGTACCT GACCACCGTG GAACTGTACA GGCGCCTGGA GGCCCGCCAG  
421 CAGGAGAAGC ACTTCGAGGT GCTCATCAGC TACCAGGAGG TGTATAATGA ACAGATCCAT  
481 GACCTCCTGG AGCCAAGGG GCCCCTTGCC ATCCGCGAGG ACCCCGACAA GGGGTGGTG  
541 GTGCAAGGAC TTTCTTCCA CCAGCCAGCC TCAGCCGAGC AGCTGCTGGA GATACTGACC  
601 AGGGGAAACC GTAACCGCAC GCAGCACCCC ACTGATGCCA ACGCGACTTC CTCCCGCTCC  
661 CATGCCATCT TCCAGATCTT TGTGAAGCAG CAGGACCGGG TTCCAGGACT GACCCAGGCT  
721 GTCCAGGTGG CCAAGATGAG CCTGATTGAC CTGGCTGGCT CAGAGCGGGC ATCCAGCACC  
781 CATGCGAAGG GGGAGCGGCT GCGGGAGGGG GCCAACATCA ACCGCTCTCT GCTGGCGCTC  
841 ATCAACGTCC TCAATGCCTT GGCCGATGCA AAGGGCCGCA AGACCCATGT GCCCTACCGG  
901 GACAGCAAAC TGACCCGCCT GCTCAAAGAC TCCCTGGGG GCAACTGCCG CACAGTGATG  
961 ATCGCTGCCA TCAGCCCCCTC CAGCCTGACC TACGAGGACA CGTACAACAC CCTC

## FIG. 2

1 DSTLQVVVRV RPPTPRELDS QRRPVVQVVD ERVLVFNPEE PDGGFPGLKW GGTHDGPKKK  
61 GKDLTFVFDV VFGEAATQOD VFQHTTHSVL DSFLQGYNCS VFAYGATGAG KTHTMLGREG  
121 DPGIMYLTTV ELYRRLEARQ QEKFHEVLIS YQEYVNEQIH DLLEPKGPLA IREDPDKGVV  
181 VQGLSFHQPA SAEQLLEILT RGNRNRTQHP TDANATSSRS HAIFQIFVKQ QDRVPGLTQA  
241 VQVAKMSLID LAGSERASST HAKGERLREG ANINRSLLAL INVNLALADA KGRKTHVPYR  
301 DSKLTRLLKD SLGGNCRTVM IAAISPSSLT YEDTYNTL

## FIG. 3

MAVEDSTLQVVVRVRPPTPRELDSQRRPVVQVVDERVLVFNPEEPDGGFPGLKWGGT  
HDGPKKKGKDLTFVFDRLVFGEAATQQDVFQHTTHSVLDSFLQGYNCSVFAYGATGAG  
KTHTMLGREGDPGIMYLTTVELYRRLEARQQEKHFEVLISYQEYVNEQIHDLLPKG  
PLAIREDPDKGVVVQGLSFHQPASAEQLLEILTRGNRNRQHPTDANATSSRSHAIF  
QIFVKQQDRVPGLTQAVQVAKMSLIDLGSERASSTHAKGERLREGANINRSLLALI  
NVLNALADAKGRKTHVPYRDSKLTRLLKDSLGGNCRTVMIAAISPSSLTYEDTYNTL  
KYADRAKEIRI KGNSKLEGKPIPNPLLGLDSTRTGHHHHHH

FIG. 4

**AT**GGCAGTGGAGGACAGCACGCTGCAAGTAGTGGTACGGGTGCGGCCCCCACCCT  
CGGGAGCTGGACAGTCAGCGGCGGCCAGTGGTTCAGGTGGTGGACGAGCGGGTGC  
GTGTTAACCTGAGGAGCCCAGTGGAGGGTCCCTGGCCTGAAATGGGTGGCACC  
CATGATGGCCCCAAGAAGAAGGGCAAAGACCTGACGTTGTCTTGACCGGGTCTT  
GGCGAGGCAGGCCACCCAACAGGACGTGTTCCAGCACACCACGCACAGCGT  
AGCTTCCTCCAGGGCTACAACCTGCTGGGAAGGGAGGGGACCCCGGCATCAT  
GTACCTGACCACC  
GTGGAACGTACAGGCGCTGGAGGGCCAGCAGGAGAACGACTTCGAGGTGCTC  
ATCAGCTACCAGGAGGTGTATAATGAACAGATCCATGACCTCCTGGAGGCCAAGGGG  
CCCCCTGCCATCCCGAGGACCCGACAAGGGGTGGTGGTGCAGGACTTTCTTC  
CACCAAGCCAGCCTCAGCCGAGCAGCTGGAGATACTGACCAGGGGAAACGTAAC  
CGCACGCAGCACCCACTGATGCCAACCGCAGCTCCCTCCGCTCCATGCCATCTC  
CAGATCTTGTGAAGCAGCAGGACCGGGTCCAGGACTGACCCAGGCTGTCCAGGT  
GCCAAGATGAGCCTGATTGACCTGGCTGGCTCAGAGCGGGCATCCAGCACCCATGCG  
AAGGGGAGCGGCTGCGGGAGGGGCAACATCAACCGCTCTGCTGGCGCTCATC  
AACGTCCCTCAATGCCCTGGCGATGCAAAGGGCCAGAACCCATGTGCCCTACCGG  
GACAGCAAACGTACCCGCCTGCTCAAAGACTCCCTGGGGCAACTGCCGCACAGTG  
ATGATCGCTGCCATCAGCCCTCCAGCCTGACCTACGAGGACACGTACAACACC  
AAATATGCCGACCGGGCAAGGAGATCAGGCTCAAGGGCAATTGAAGCTTGAAGGT  
AAGCCTATCCCTAACCTCTCCTCGGTCTGATTCTACGCGTACCGGT  
CATCACCATCACCATTGA

FIG. 5

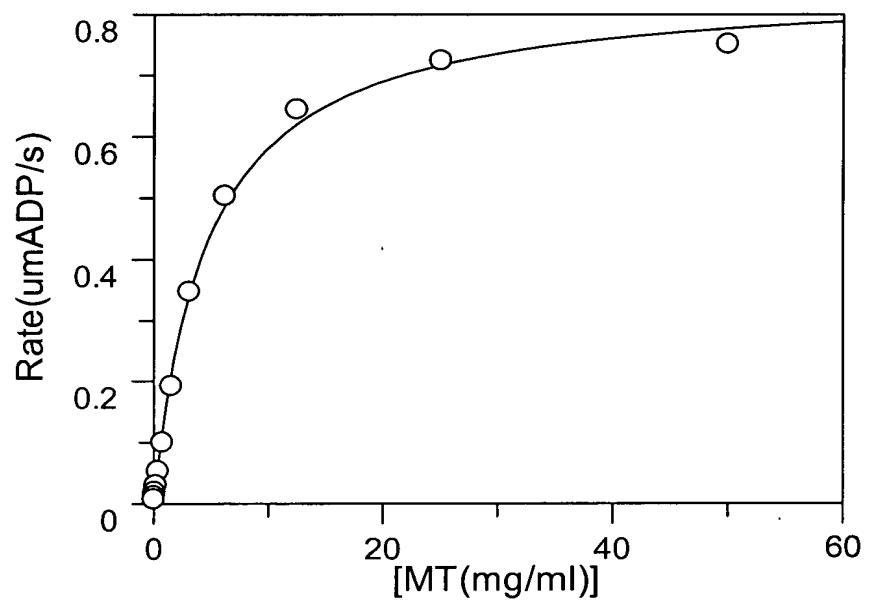


FIG. 6

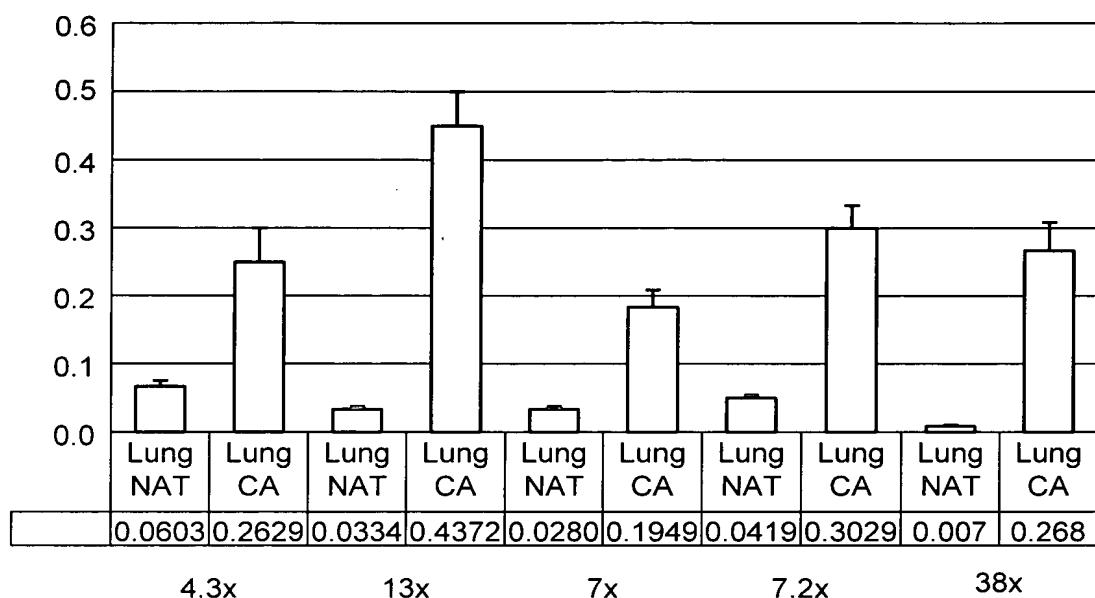


FIG. 7A

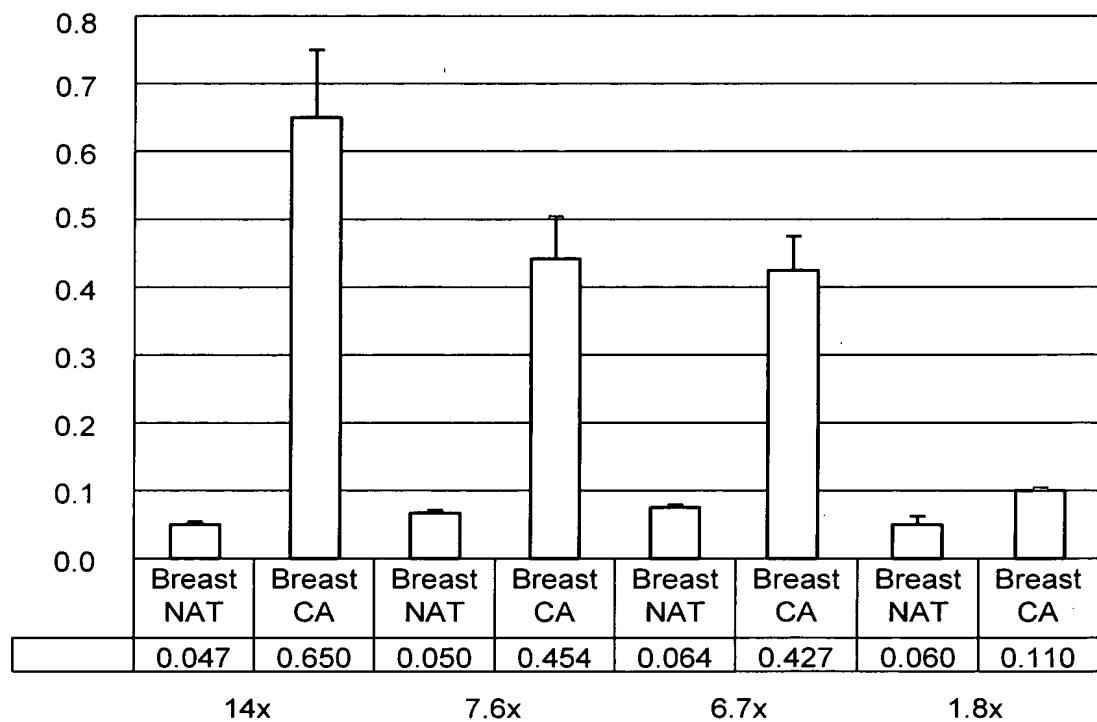


FIG. 7B

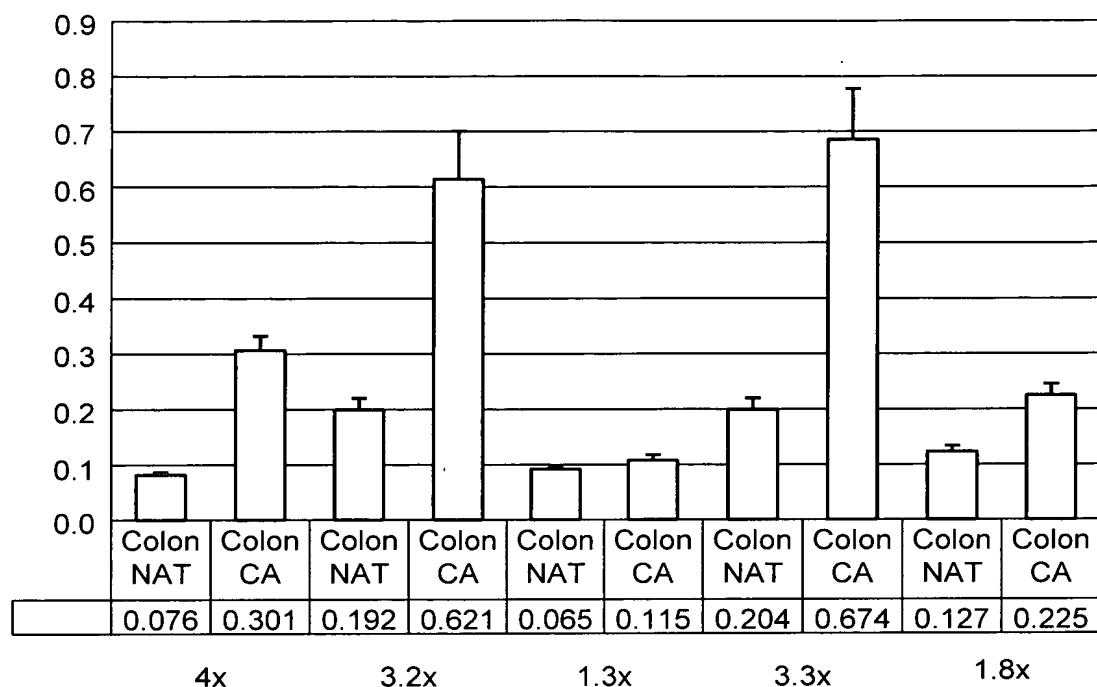


FIG. 7C

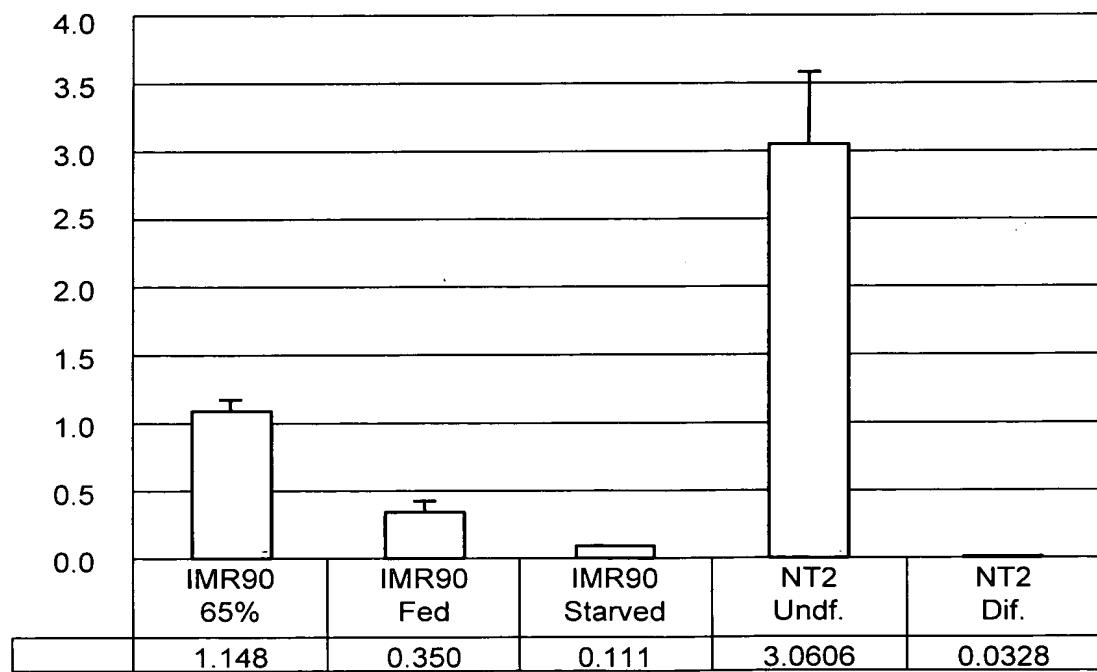


FIG. 7D